Program Charter
for
Air Quality

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1. EXECUTIVE SUMMARY

Program Description

The Air Quality Matrix Program provides environmental policy-makers and resource managers information and tools to support the development of effective policies and emissions management programs. This includes information on the key processes contributing to poor air quality, the impacts of poor air quality, and potential solutions. The Program also produces timely and accurate air quality forecast guidance so people can take appropriate action to limit adverse effects of poor air quality. These activities specifically address priorities established by Congress and NOAA in response to the large public health risk caused by poor air quality (AQ). NOAA works with a number of partners, especially from academia and the U.S. Environmental Protection Agency (EPA), to achieve these goals. The Program's customers include air quality policy-makers at all levels of government, state and local air quality forecasters, industrial planners, and the public.

Goal Supported: The Air Quality Program supports the Weather and Water Goal.

Where Program Activities Occur:

- Boulder, Colorado
- Camp Springs, Maryland
- Silver Spring, Maryland
- Research Triangle Park, North Carolina
- Oak Ridge, Tennessee
- Seattle, Washington

2. PROGRAM REQUIREMENTS

A. Requirements Drivers

Legislation

Since air quality is a relatively small activity in NOAA and has a shorter history than some other NOAA activities, such as weather forecasting and fisheries management, there is no equivalent to the Organic Act for the Air Quality Program. However, there has been clear Congressional direction for AQ activities.

1. *Appropriations for air quality research*: NOAA's appropriations during a portion of the 1990s included a line item for NOAA's Health of the Atmosphere program, which conducts air quality research. This provided explicit guidance to conduct regional AQ assessment and monitoring activities. For instance, the 1998 appropriation includes a budget increase to fund regional assessments. When NOAA's budget was reorganized in later years, the Health of the Atmosphere line item was folded into the broader Office of Oceanic and Atmospheric Research budget, but the funding and work has continued.

2. *Appropriations for air quality forecasting*: NOAA appropriations since 2002 have included a line item for air quality forecasting.

3. *42 U.S.C. § 7412(m), Atmospheric deposition to Great Lakes and coastal waters*: NOAA shall work with EPA to identify and assess the extent of deposition of atmospheric pollutants to significant water bodies.

4. *42 U.S.C. § 7403(e) Ecosystem research*: NOAA shall work with EPA and other agencies to conduct a research program to improve understanding of the short-term and long-term causes, effects, and trends of ecosystems damage from air pollutants on ecosystems.

5. *33 U.S.C. § 883(d), Improvement of methods, instruments, and equipments; investigations and research*: To improve the efficiency of the National Ocean Survey and to increase engineering and scientific knowledge, the Secretary of Commerce is authorized to conduct developmental work for the improvement of surveying and cartographic methods, instruments, and equipments; and to conduct investigations and research in geophysical sciences (including geodesy, oceanography, seismology, and geomagnetism).

Interagency or International Agreement

6. *Memorandum of Understanding between NOAA and EPA signed by the Deputy Secretary of Commerce and the Administrator of EPA (May 2003)*: NOAA and EPA will collaborate on air quality research, including studies of atmospheric processes concerning air quality and development of improved models and forecasts.

7. *Memorandum of Agreement between NOAA and EPA signed by the Deputy Secretary of Commerce and the Administrator of EPA (May 2003)*: NOAA and EPA will collaborate on air quality forecasting. NOAA deliverables include improved air quality forecast models and air quality forecast guidance. EPA deliverables include emissions inventory and monitoring data.

8. *Memorandum of Understanding between NOAA and the Federal Aviation Administration signed by the Under Secretary for Oceans and Atmosphere and the Administrator of Federal Aviation Administration (December 1988) and a Letter of Agreement between NOAA and U.S. Geological Survey signed by Assistant Administrator for Weather Services, Assistant Administrator for Satellite and Information Services, and Chief Geologist for USGS (October 1993)*: NOAA will provide forecasts of volcanic ash plume movement to FAA and USGS.

9. *World Meteorological Organization*: As the U.S. representative to the World Meteorological Organization (WMO), NOAA accepts responsibilities for portions of projects that study international issues, such as air pollution. One such responsibility NOAA has accepted is to support quality assurance and data archives for the Global Atmosphere Watch, which takes air quality observations on global and regional scales, provides the scientific community with the means to predict future atmospheric states, and organizes assessments in support of formulating environmental policy.

B. Mission Requirements

- Provide operational air quality forecast products so the nation can more effectively limit adverse effects of poor air quality [RD2, RD7]
- Provide air quality decision-makers key information about the atmospheric processes responsible for poor air quality and related tools to support the development of effective policies and emissions management programs (examples of decision-makers include Federal, state, and local policy-makers and regulators, industrial planners, and other air quality stakeholders) [RD1, RD4, RD5, RD6, RD8]
- Provide information about trends of air quality and atmospheric deposition to support scientifically sound air quality policies [RD3, RD9]

3. LINKS TO THE NOAA STRATEGIC PLAN

A. Goal Outcomes Supported

The Air Quality Program supports the Mission Support outcome through:

- Reduced loss of life, injury, and damage to the economy
- Better, quicker, and more valuable weather and water information to support improved decisions
- Increased customer satisfaction with weather and water information and services

B. Goal Performance Objectives Supported

The Air Quality Program supports the Goal Performance Objectives through**:**

- Improved predictability of the onset, duration, and impact of hazardous and severe weather and water events.
- Increased application and accessibility of weather and water information as the foundation for creating and leveraging public (i.e., Federal, state, local, tribal), private and academic partnerships.
- Increased development, application, and transition of advanced science and technology to operations and services.
- Reduced uncertainty associated with weather and water decision tools and assessments.

C. Goal Strategies

The Air Quality Program supports the Goal Strategies by:

- Improving the reliability, lead-time, and effectiveness of weather and water information and services that predict changes in environmental conditions
- Integrating an information enterprise that incorporates all stages from research to delivery, seeks better coordination of employee skills and training, and engages customers
- Developing and infuse research results and new technologies more efficiently to improve products and services, streamline dissemination, and communicate vital information more effectively
- Working with private industry, universities, and national and international agencies to create and leverage partnerships that foster more effective information services
- Employing scientific and emerging technological capabilities to advance decision-support services and educate stakeholders

4. PROGRAM OUTCOME(S)

- Local, regional, and national air quality decision-makers can make effective policies and plans to protect public health, reducing mortality and morbidity, and sensitive ecosystems while also helping to maintain a vital economy
- The Nation can more effectively limit adverse effects of poor air quality, reducing mortality and morbidity while also helping to maintain a vital economy

5. PROGRAM ROLES AND RESPONSIBILITIES

This program is established and managed with the procedures established in the NOAA Business Operations Manual (BOM). Responsibilities of the Program Manager are described

in the BOM. Responsibilities of other major participants are summarized below:

A. Participating Line Office, Staff Office, and Council Responsibilities:

1. NOAA Research is responsible for the following:

- Improving the understanding of the atmospheric processes that are responsible for poor air quality
- Improving the understanding of long-term trends of air quality and atmospheric deposition
- Improving NOAA's ability to measure air quality parameters and processes
- Improving air quality forecasting modeling systems to address operational needs and providing prototype systems to NOAA National Weather Service
- Communicating assessments of key air quality processes to air quality decision makers
- Developing modeling and analysis tools for air quality decision-makers
- Sharing research results with the air quality community

2. NOAA National Weather Service is responsible for the following:

- Developing, testing, and integrating air quality forecast system components to create operational forecasting capabilities
- Evaluating operational forecast guidance
- Providing operational AQ forecast data for customers
- Outreach to air quality forecasters on NOAA forecast guidance
- Communicating air quality forecast research needs to NOAA Research

3. NOAA Satellites and Information is responsible for the following:

- Developing and providing operational satellite-based products that are required to support to air quality research and forecasting
- Archiving operational AQ forecast guidance

4. NOAA Marine and Aviation Operations is responsible for providing ship and aircraft platforms for observing systems during field experiments.

5. NOAA General Counsel is responsible for approving grants and interagency agreements and providing other legal support as required.

6. NOAA Administrative Services is responsible for providing administrative support for grants.

7. NOAA Facilities is responsible for providing a safe and productive work environment.

8. NOAA Information Technology (IT) Services is responsible for providing the general IT services required by the program.

9. The Research Council and the Observing Council set applicable policies and review selected activities.

10. NOAA Office of Public and Intergovernmental Affairs communicates findings and results to a variety of audiences via the media.

B. External Agency/Organization Responsibilities:

1. The U.S. Environmental Protection Agency is responsible for providing emissions inputs for air quality forecast models and for funding the development, evaluation, and application of air quality assessment models.

C. Additional Relationships with Other NOAA Programs:

1. The Environmental Modeling Program (EMP) provides predicted meteorological fields that are used as inputs for air quality models. EMP also provides the high performance computing resources required for testing and running operational air quality models.

2. Due to the strong connections between climate and air quality (e.g., particulate matter pollution affects radiation balances), the Air Quality and Climate Forcing Programs coordinate their field activities to maximize the benefit of access to NOAA aircraft and ships and to provide opportunities to generate data and analyses that address the information gaps in both programs. Also, coordination in modeling the interactions of climate change and air quality is needed.

6. END USERS OR BENEFICIARIES OF PROGRAM

1. Air Quality Policy-Makers and Planners—The Program provides air quality decision-makers key information about the atmospheric processes responsible for poor air quality and related tools. The information and tools allow the decision-makers to better protect public health and sensitive ecosystems—while also maintaining a vital economy—through improved national air quality policies and local and regional air quality management strategies.

2. General Public—Information provided by the Program allows individuals to take actions to limit harmful effects of poor air quality.

3. Air Quality Forecasters—The Program's forecast guidance provides advanced information on the onset, severity and duration of poor air quality that enables state and local air quality forecasters to issue more accurate air quality warnings and alerts, thereby improving the effectiveness of participating communities' actions to mitigate impacts of poor air quality.